

In the Claims:

Claim 1. (Currently amended) A data acquisition and display system comprising

at least one data acquisition device, operable to acquire field data of a presently viewed field having field location data, from a scannable field of interest using each of at least a first and a second data acquisition method, said first and second data acquisition methods being respectively different illumination type, illumination path, marking and data gathering combinations,

a field data storage device for storing said field data together with field location data corresponding thereto, and

a field data display device being operable to display simultaneously field data of said presently viewed field, acquired respectively by said first and said second data acquisition method, said field data being matchable by said field location data.

Claim 2 (Previously Amended). A data acquisition and display system according to claim 1, wherein said field data is image data.

Claim 3 (Previously Amended). A data acquisition and display system according to claim 1, wherein said scannable field of interest is substantially larger than said presently viewed field such that a plurality of viewed fields are required to cover said scannable field of interest.

Claim 4 (Previously Amended). A data acquisition and display system according to claim 2, wherein said scannable field of interest is substantially larger than said presently viewed field such that a plurality of viewed fields are required to cover said scannable field of interest.

Claim 5 (Previously Amended). A data acquisition and display system according to claim 4, wherein said field data storage device is operable to store image

data of an entirety of said scannable field of interest acquired according to said first data acquisition method.

Claim 6 (Previously Amended). A data acquisition and display system according to claim 5, wherein said data acquisition device is operable to acquire image data of a presently viewed field of view using said second data acquisition method and said field data display device is operable to display said image data in conjunction with a corresponding image acquired using said first data acquisition method.

Claim 7 (Previously Amended). A data acquisition and display system according to claim 1, wherein said data acquisition device is a microscope.

Claim 8 (Previously Amended). A data acquisition and display system according to claim 7, wherein said data acquisition device is a microscope and wherein said microscope is any one of a group comprising a light microscope, a scanning electron microscope and a transmission electron microscope.

Claim 9 (Previously Amended). A data acquisition and display system according to claim 1, wherein said data acquisition device is a telescope.

Claim 10 (Previously Amended). A data acquisition and display system according to claim 9, wherein said telescope is any one of a group comprising a refracting telescope, a reflecting telescope, an infra-red telescope, a radio telescope, a gamma-ray telescope, and an x-ray telescope.

Claim 11 (Previously Amended). A data acquisition and display system according to claim 1, wherein said data acquisition device is terrestrially based.

Claim 12 (Previously Amended). A data acquisition and display system according to claim 1, wherein said data acquisition device is suitable for being airborne.

Claim 13 (Previously Amended). A data acquisition and display system according to claim 1, wherein said data acquisition device is suitable for being spaceborne.

Claim 14. (Cancelled)

Claim 15. (Currently amended)An acquisition and display co-ordinator for co-ordinating between at least one image data acquisition device, operable for acquiring image data according to at least two data acquisition methods, and a data display device, said co-ordinator being operable to store image data obtained using a first data acquisition method together with location data of an image within a scannable field of interest, and to display said image simultaneously with an image having similar location data acquired using a second data acquisition method, said first and second data acquisition methods being respectively different illumination type, illumination path, marking and data gathering combinations,

Claim 16. (Original)An acquisition and display co-ordinator according to claim 15, wherein said scannable field of interest is substantially larger than a presently viewed field such that a plurality of viewed fields are required to cover said scannable field of interest.

Claim 17. (Previously Amended). An acquisition and display co-ordinator according to claim 16, operable to store image data of an entirety of said scannable field of interest acquired according to said first data acquisition method.

Claim 18. (Previously Amended). An acquisition and display co-ordinator according to claim 17, wherein said data acquisition device is operable to acquire image data of a presently viewed field of view using said second data acquisition method and said data display device is operable to display said image data in real time in conjunction with a corresponding image acquired using said first data acquisition method.

Claim 19. (Original) An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is a microscope.

Claim 20. (Original) An acquisition and display co-ordinator according to claim 19, wherein said microscope is any one of a group comprising a light microscope, a scanning electron microscope and a transmission electron microscope.

Claim 21. (Original) An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is any one of a group comprising a thermal imager, an image intensifier, a telescope, a camera, and a radar.

Claim 22. (Original) An acquisition and display co-ordinator according to claim 21, wherein said telescope is any one of a group comprising a refracting telescope, a reflecting telescope, an infra-red telescope, a radio telescope, a gamma-ray telescope, and an x-ray telescope

Claim 23. (Original) An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is terrestrially based.

Claim 24. (Original)An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is suitable for being airborne.

Claim 25. (Original) An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is suitable for being spaceborne.

Claim 26. (Original)An acquisition and display co-ordinator according to claim 15 which is operable to position said data acquisition device.

Claim 27. (Original)An acquisition and display co-ordinator according to claim 15, which is operable to monitor positioning of said data acquisition device.

Claim 28. (Original)An acquisition and display co-ordinator according to claim 15, wherein said location data additionally comprises focussing data for defining a focal plane.

Claim 29. (Original)An acquisition and display co-ordinator according to claim 15, comprising software on computer readable media for installation on a computer operatively associated with said data acquisition device.

Claim 30. (Currently amended) An acquisition and display co-ordinating method comprising the steps of:

acquiring first data of a field of view within a field of interest being scanned using a first data acquisition method,

storing said data together with field location data of said field of view within said field of interest being scanned,

subsequently acquiring second data of a corresponding field of view within said field of interest being scanned using a second data acquisition method, and

retrieving said first data using said field location data and simultaneously displaying said first data and said second data, said first and second data acquisition modes being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 31. (Original)An acquisition and display co-ordinating method according to claim 30, wherein said first data and said second data are first and second images respectively.

Claim 32. (Previously Amended).An acquisition and display co-ordinating method according to claim 31, wherein said first and second images, being simultaneously displayed, are superimposed one on the other.

Claim 33. (Previously Amended).An acquisition and display co-ordinating method according to claim 31 wherein said first and second images, being simultaneously displayed, are displayed side by side.

Claim 34. (Previously Amended).An acquisition and display co-ordinating method according to claim 31, wherein at least one of said first data and said second data is acquired using any one of a group comprising a thermal imager, a microscope, an image intensifier, a telescope, a camera, and a radar.

Claim 35. (Original)An acquisition and display co-ordinating method according to claim 34, wherein said microscope is any one of a group comprising a light microscope, a scanning electron microscope and a transmission electron microscope.

Claim 36. (Original)An acquisition and display co-ordinating method according to claim 34, wherein said telescope is any one of a group comprising a refracting telescope, a reflecting telescope, an infra-red telescope, a radio telescope, a gamma-ray telescope, and an x-ray telescope.

Claim 37. (Previously Amended). An acquisition and display co-ordinating method according to claim 31, wherein at least one of said first and said second data is acquired using a member of a group comprising a telescope and a thermal imaging device, said member being operable to gather data at a plurality of different wavelengths and wherein each data acquisition method comprises gathering data at a different one of said wavelengths.

Claim 38. (Currently amended) A method of display of data acquired in at least two data acquisition methods from a scannable field of interest comprising:

- scanning the field of interest using a first data acquisition method,
- forming a plurality of first images of said field of interest,
- indexing said images,
- storing said indexed images,
- scanning the field of interest using a second data acquisition method to form at least one second image corresponding to one of said first images,
- indexing said at least one second image,
- determining from the indices which of said first images corresponds to said second image,
- simultaneously displaying said second image and said corresponding first image, said first and second data acquisition method being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 39. (Currently amended) A method of display of data acquired in at least two data acquisition methods from a scannable field of interest comprising:

- scanning the field of interest using a first data acquisition method,
- forming a plurality of first images of said field of interest,
- indexing said images,
- storing said indexed images,
- scanning the field of interest using a second data acquisition method to form at least one second image corresponding to an index of a predetermined one of said first images, and

simultaneously displaying said second image and said corresponding first image said first and second data acquisition methods being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 40. (Currently amended) A method of constructing an image gathering and display co-ordination system, the method comprising,

providing an image gathering device operable to gather image data, using a plurality of image gathering methods, according to externally provided positioning commands,

providing an image storing device and connecting said image storing device to said image gathering device such that said image storing device is able to store data gathered from said image gathering device in association with said externally provided positioning commands corresponding to said data, and

providing an image display device for simultaneously displaying a plurality of images gathered using different image gathering methods but with identical positioning commands said different image gathering methods being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 41. (Original) A method according to claim 40, wherein said image display device is operable to display at least one image from said storage device together with one image direct from said image gathering device.

Claim 42. (Currently amended) A control system for controlling an image data acquisition device, operable for acquiring image data according to at least ~~two~~ first and second data acquisition methods, and a data display device, said control system being operable to store image data obtained using a first data acquisition method together with location data of said image data within a scannable field of interest, and to display image simultaneously with an image having similar location data acquired using a second data acquisition method, said first and second data acquisition modes being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 43. (Currently amended) A control system for controlling an imaging device and a display device together to permit a user to move over a field of interest with said imaging device to image the field in parts using one imaging method, to index each part with a current location of said imaging device, and to display a current part on said display device whilst simultaneously and automatically displaying a second image of a same part of the field previously obtained using a different imaging method and indexed using a then current location of said imaging device, the second image being automatically replaced as the imaging device moves to a different part of the field of interest using a respective index said-said imaging methods being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 44. (Original) A control system according to claim 43, wherein said imaging device is operable to image said field of interest using at least three imaging methods and wherein said display device is operable to display simultaneously all images of a part of said field of interest currently being viewed.

Claim 45. (Currently amended) A data acquisition and display system comprising

at least one data acquisition device, operable to scan a field of interest and acquire field data of parts having field location data, from said scannable field of interest using each of at least a first and a second data acquisition method,

a field data storage device for storing said field data together with corresponding field location data, and

a field data display device being operable to display simultaneously field data, acquired respectively by said first and said second data acquisition method, said field data being matchable by said field location data, said first and second data acquisition methods being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 46. (Currently amended) A method of applying an intrinsic co-ordinate system to a mount-and-object system to provide co-ordinated viewing of points on ~~said an~~ object imaged using different image gathering methods, said image

gathering methods being respectively different illumination, marking and data gathering combinations, the method comprising:

identifying a plurality of edge points in said mount and object system using automatic image processing,

interpolating straight lines between said edge points,

identifying two perpendicular straight lines from said interpolated straight lines,

identifying a meeting point between said perpendicular straight lines,

defining said meeting point as an origin for said intrinsic co-ordinate system,

and

using said co-ordinate system to provide automatic cross-referencing between said points on said object imaged using said different image gathering methods, said image gathering methods being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 47. (Original) A method according to claim 46, wherein the mount-and-object system has a substantially rectangular outline.

Claim 48. (Currently amended) A method of imaging a mount-and-object system using an intrinsic co-ordinate system, comprising the steps of:

identifying a plurality of edge points in said mount and object system using automatic image processing,

interpolating straight lines between said edge points,

identifying two perpendicular straight lines from said interpolated straight lines,

identifying a meeting point between said perpendicular straight lines,

defining said meeting point as an origin for said intrinsic co-ordinate system,

making a plurality of images at different locations on said mount-and-object system, and

indexing said images based on its respective location expressed in terms of said intrinsic co-ordinate system, thereby to provide correspondence between regions on said an object when imaged by different imaging methods, said different imaging methods being respectively different illumination type, illumination path, marking and data gathering combinations.

Claim 49. (Original) A method according to claim 48 wherein the mount-and-object system is substantially rectangular.

Claim 50. (Original) A method according to claim 48, comprising a further step of fine registration between two series of said images of the same mount-and-object system, comprising the steps of identifying an identical feature on each series of images,

placing a cross-hair on said identical feature on each series of said images, and
defining the center of the cross hair as being the same location on each set of images so as to modify the intrinsic co-ordinate system.